REMARKS

All of pending Claims 1 through 13 stand rejected as unpatentable over several references considered in combination. No single reference has been identified that suggests or discloses the invention as recited in the pending claims. Claims 1 through 13 have been rejected as unpatentable over the newly cited reference Johannsen U.S. Patent No. 3,964,354 considered in combination with previously applied Hansen U.S. Patent No. 5,870,965. Claims 1 through 13 have been rejected over the previously applied combination of patents Lynn et al. U.S. Patent No. 6,093,481 and Day U.S. Patent No. 5,589,243. Claims 1 through 13 have been rejected as unpatentable over the previously applied combination of Day '243 reference with the Hansen '965 reference.

All of Applicants' pending claims recite that each opposite lateral surface of the polypropylene-based core is skived to provide a layer of open cells for adhesive bonding to the skin layers. The Johannsen '354 reference relates to a polyvinylchloride foam core for laminated structures that is cut all the way through from one surface to the opposite surface, except for small hinge pieces (14) in Figures 2, 3, 4, 6, and 7, so that the core material can be applied to the contours of a mold in which the skin is attached with a suitable adhesive. Skiving, in which the surfaces of a foam are shaved or cut off to provide a layer of open cells at the surface, is not disclosed or suggested in any manner whatsoever in the Johannsen reference.

There is no suggestion or disclosure to combine the Hansen '965 and Johannsen '354 references. The Hansen '965 reference discloses stabilizing members, which can include closed cell polypropylene foams, that are bolted to the sides of the hull of a boat. Sandwich laminates are not disclosed or suggested. There is no suggestion to substitute polypropylene for the PVC disclosed in the Johannsen '354 reference. There is no disclosure or suggestion as to how this substitution might be accomplished. Assuming for the sake of argument, that the Johannsen '354 and Hansen '965 references are properly combined, there is absolutely no disclosure or suggestion of skiving the surface of a polypropylene core for attachment of skins to form a laminate. Accordingly, Applicants' pending Claim 1 and Claims 2 through 13 and 16 through 18 are patentable over the Johannsen '354 and Hansen '965 references.

Neither of the Lynn '481 or Day '243 references discloses or suggests skiving a core to prepare a sandwich laminate. Lynn is directed to fiberglass reinforced sheets that are used for thermal insulation and that are prepared from a foam forming composition that is formed after a facing sheet has been applied. Skiving of the core is not even possible in this arrangement.

The Day '243 reference is directed to reinforced foam panels for marine use that are prepared by laminating alternating layers of foam and fibrous web together to create a composite having skins that are laminated to the composite. Polypropylene, which is difficult to bond, is not even disclosed as a suitable core material. The Day '243 cores are prepared by laminating multiple alternating layers of fibrous web sheets and core to form a billet and then cutting the billet through the alternating layers to form a reinforced foam core panel that has spaced webs formed by strips of the fibrous sheets. The spaced web strips on each side of the core panel that is formed provide bonding sites with skins that are applied to the core. Additionally, recesses or fillets can be cut into the panels to provide an expanded area for connection between the web portions and the panel skins. However, cutting fillets or recesses into the surface of a foam core is not the same as skiving the core. In skiving, the surface of the foam is removed to provide an open layer of cells at the surface of the foam that can be penetrated by adhesive, rather than closed cells. The Day '243 reference at column 2, lines 24 through 26, teaches against this practice and states that planing or sanding the facing of a board removes the skin part of the foam board having the highest density and strength. There is no suggestion or recognition that skiving the surface of a foam can be used to increase mechanical bonding strength between a skin and a core material of any type, much less polypropylene.

There is no motivation to combine the Lynn and Day references. However, even considered in combination, there is no disclosure or suggestion whatsoever to skive the surface of a polypropylene-based core material for bonding to a skin material.

None of the references of record, considered alone or in combination, disclose skiving the surface of a polypropylene-based core material in any manner whatsoever None of the references, considered alone or in combination, recognize or suggest any benefit in bonding skins to a polypropylene core that can be achieved by skiving.

Applicants have added new Claims 16 through 18 to clarify that, although a separately applied adhesive can be used in connection with Applicants' invention to join the skived polypropylene-based core to a skin, no separate adhesive layer need be used. Whether adhesive is used or not, the polypropylene-based core is joined to the skin by skiving the core to provide a surface of open cells and causing resin, either a separate adhesive layer or skin material, to flow into the open cells so as to create a mechanical bond upon hardening. Heat can be applied to either the core or the facing panel to cause the facing panel material to flow into the open cells on the surface of the polypropylene foam to eventually harden within these cells and to form a strong mechanical lock between the skin surface and the core. The core can also be molded to an uncured fiber reinforced plastic that will flow into and occupy the cells of the polypropylene foam and upon curing form a strong mechanical lock.

It is respectfully submitted that all of pending Claims 1 through 13 and 16 through 18 are now in condition for immediate allowance and an early notification of the allowability of these claims is earnestly solicited. If any matters remain to resolved, the Examiner is urged to contact the undersigned attorney by telephone at 704-444-1021 to expedite prosecution of this application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

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therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on February 12, 2003.

Grace R. Rippy